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Linnaeus, Analogy, and Taxonomy: Botanical Naming and Categorization in Erasmus Darwin and Charlotte Smith

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IN HIS 1782 ODE XII “TO A FRIEND,” John Scott of Amwell celebrated botanizing with the Linnaean catalogue in hand:

Of we search'd Linnæus' page;
The Scanian Sage, whose wond'rous toil
Had class'd the vegetable race:
And curious, oft from place to place,
We rang'd, and sought each different soil,
Each different plant intent to view,
And all the marks minute to trace,
Where he his nice distinctions drew.¹

Considering that Carl Linnaeus designed his botanical textbooks to be portable so that they could be carried in the field, it is easy to envision Scott and his friend classing “each different plant” with book in hand according to the method of the Swedish botanist.² There is a real focus on specificity here, as flowers are parsed according to “marks minute” that can be described and counted by “curious” amateurs. In his translator's preface to Rousseau's botanical letters, Thomas Martyn urged his readers to recognize the necessity of *doing* botany in order to understand its language, noting that “botany is not to be learned in the closet; you must go forth into the garden or the fields, and there become familiar with Nature herself.”³ This practical approach is frequently found in didactic texts from the period, such as Charlotte Smith's *Rural Walks* (1795) and Priscilla Wakefield's *Introduction to Botany* (1796), where the dramatic techniques of dialogues in natural scenes and letters recording lessons are used to present active botany.

Linnaean botany influenced poets of the late eighteenth century, including both Charlotte Smith and Erasmus Darwin, whose verses aim to transmit the active experience and knowledge of botany through natural description. Their verses demonstrate both the didactic possibilities and

the visual challenges of botanical poetry. In his *Essay on the Application of Natural History to Poetry* (1777), John Aiken justifies the zoological focus of his own celebration of poetic natural imagery: “the vegetable creation, delightful as it is to the senses, and extensive in utility, yields comparatively few materials to the poet, whose art is principally defective in representing those qualities in which it chiefly excels; colour, scent, and taste.”⁴ For Aiken, then, the constraints of language limit the literary applications of botanical description, a struggle which can be seen in Smith’s poetic and artistic depiction of flowers in *Elegiac Sonnets* (1784–1800). However, the botanical lessons in her *Conversations Introducing Poetry* (1804) and in Darwin’s *The Loves of the Plants* (1789), a poem which brings personified plants to life, wield analogy in a positive engagement with Linnaean botany that visualizes and recreates plants on the poetic page.

This is, of course, not the first time that Linnaeus’s influence upon British poets has been noted. Sam George, Amy King, and Jacqueline Labbe have all uncovered the impact of Linnaean botany on women’s writing and education during the period.⁵ Similarly, Theresa Kelley’s *Clandestine Marriage* explores the reception and limitations of Linnaeus’s artificial system, whilst Martin Priestman and Patricia Fara have considered the adoption of this system in *The Loves of the Plants* in particular.⁶ Both Catherine Packham and Devin Griffiths have explored Darwin’s use of analogy in *The Loves of the Plants* and *Zoonomia* (1794).⁷ These studies have focused on three broad areas: the sexual analogy and its reception, didacticism in women’s botanical writing and instructive personification in Darwin, and Darwin’s division of poetic and philosophical analogy. Analogy has been understood in these contexts as a method of drawing similitudes and categories. However, attention to the use of binomial names, themselves a form of analogizing in Linnaeus’s work, has received scant attention. Critics have noted Smith’s use of binomial plant names in terms of her command of authority, but they tend to assume that her use of both English and Latin terms is fairly arbitrary.

This study develops these earlier studies of botanical poetry and analogy to present a new kind of analogy as a way of understanding the didactic function of plant names and the ways in which both poets’ works convey both aesthetic experience and technical knowledge. Following a recapitulation of the recognised sexual analogy (where flowers have husbands and wives according the number of stamens and pistils that are counted to classify them), I explore the relevance of analogy to plant naming. First, I draw on Linnaeus’s own analogies between the characters of plants and the characters of the binomial terms that he chooses to signify them. I then apply this to didactic poetry by considering the analogies produced in the

relationship between the genus names (in Darwin's narrative tableaux and in Smith's descriptive vignettes) and the English footnotes in both poets' works. I will show how this analogical interplay produces a particularly visual form of reading that develops specialist perception and botanical knowledge.

Analogy is central to Linnaeus's method of botanical classification and his aim to capture the essence of a plant's biology through genus naming. These analogies are visible in the poetry of Smith and Darwin which elucidates systematic botany by creating narrative and visual connections between plants and the technical information represented by their names, classes, and orders. Analogy enables botanists and readers alike to conceptualize, recall, and replicate new ideas. In *Cyclopaedia* (1728), Ephraim Chambers defines analogy as "a certain Relation, Proportion, or Agreement, which several Things, in other respects different, bear to each other," which, "may serve to explain and illustrate, but not to prove any thing."⁸ Darwin himself explores the possibilities of "rational analogy" for uncovering natural order in the preface to his later *Zoonomia*:

The great CREATOR of all things has infinitely diversified the work of his hands, but has at the same time stamped a certain similitude on the features of nature, that demonstrates to us, that *the whole is one family of one parent*. On this similitude is founded all rational analogy; which, so long as it is concerned in comparing the essential properties of bodies, leads us to many and important discoveries.⁹

However, Darwin also warns that analogy is only an accessory to the understanding: "when with licentious activity it links together objects, otherwise discordant, by some fanciful similitude; it may indeed collect ornaments for wit and poetry, but philosophy and truth recoil from its combinations" (1). This essay will address the differentiation between "fanciful" links that might be promoted for didactic or demonstrative purposes and the "combinations" that produce new knowledge. As Devin Griffiths has shown, Darwin's interest in analogy is connected to the botanist-poet's own aims "to explore natural patterns and give them literary form."¹⁰ This is demonstrated in *Zoonomia* where plants are considered as "inferior or less perfect animals," with "petals for lungs," and comparable digestive structures (102). These analogical parallels, which promote detailed structural knowledge, are central to the presentation of botany in verse.

This essay therefore considers literary promotions of analogical correspondences in the parallels between flora and fauna and those between botanical and domestic language, as well as the conceptual analogy between language as a classificatory system and the vegetable world as a system that can be classified. As Brian Olgivie explains, an understanding of natural history is determined by observation and naming: "what one observes is, to

a large extent, a function of what one has been trained to observe and the vocabulary that has been elaborated to express it".¹¹ These forms of analogy train readers to produce sharper visual images of plants and to forge connections between those images and specialist botanical knowledge.¹² In the following section of this essay, I will demonstrate how analogy works in terms of classification and the teaching of botanical concepts. I will then investigate how botanical poetry can develop the reader's specialist perception by creating analogical associations between the botanical knowledge encapsulated in Linnaeus's plant naming and the visual images of plants.

Linnaeus presented his system of classification early in his career in the *Systema Naturae* of 1735. His system of botanical nomenclature was not introduced for another sixteen years, appearing first in *Philosophia Botanica* (1751) and subsequently in *Species Plantarum* (1753).¹³ The convergence of classification and nomenclature has distinct implications for the development of botanical analogies. Linnaeus uses a form of synecdoche in order to present the image of the plant via a verbal identifier. If in the *Systema Naturae* plants are classified according to the synecdoche whereby the number of stamens and pistils stands for the whole, without the "accurate and multifarious Observation" of plants, seeds, roots, trunks or stems, leaves, petals, and other features that we see in pre-Linnaean taxonomies such as Nehemiah Grew's 1682 *Anatomy of Plants*, then Linnaeus's nomenclature obeys the same principle.¹⁴ The ideal is that the best synonyms will create the image of the plant on paper.

Precise and clear plant nomenclature is vital to Linnaeus's work, especially where taxonomical relationships between genera cannot be represented through technical diagrams or where the cost of including technical illustrations is prohibitive.¹⁵ The botanist outlines his rules in *Philosophia Botanica*: "True botanists know botany by its own principles, and they must know how to give every plant a name that is easy to understand."¹⁶ Linnaeus describes various different methods of naming, and it is easy to identify his own approach:

Synonymists collect the various names that plants were formerly given by botanists...
Critics determine the names which truly belong to plants' geni and species...
Etymologists uncover the roots and origins of genus names...
Lexicographers gather together names from different languages...¹⁷

For Linnaeus, as a botanical critic, naming and categorization cannot be separated. Names are sought to be truly representative of plants and their place within the botanical system. In his suggestion that "Nature makes no mistakes," Linnaeus outlines a web of taxonomic connections in which all plants can be named and placed within a catalogic system.¹⁸ The arrange-

ment of this botanical web is determined by correct naming. Linnaeus thus suggests a system of naming in which the plant's essence and its name are intimately connected.¹⁹

This intimate analogy between plant and name is explored further. The sixth chapter of *Philosophia Botanica* is devoted to the description of "character", that is, the name which is given to represent a plant's genus. Linnaeus differentiates between three kinds of character—the fabricated, the essential, and the natural—and he recommends the last version.²⁰ Frans A. Stafleu's description of the term "character" helps to uncover the purpose that Linnaeus has in mind: "The *character* as understood by Linnaeus is the definition of a plant, expressing its essence. For our purposes we can best use the word 'diagnosis' for it. It definitely does not denote 'characteristic,' a single feature; for this Linnaeus uses the term *nota* (pl. *Notae*)."²¹ This ideal of a natural botanical language that forges intrinsic connections between plants' real essences and the words that describe them is compelling. Linnaeus's ideal verbal characters are well suited to the purposes of poets trying to describe the natural world in detail.

Common analogies in Linnaeus's work and the poetry of Darwin and Smith allow each writer to express their botanical insights with directness and precision. Analogy, therefore, provides a linguistic meeting point for scientific and poetic botanizers. David Locke draws a comparison between scientific and poetic modes of writing which may help us to think through this idea of analogy more carefully:

It is the poet's task to provide what Eliot calls the "objective correlative," that talking detail that conveys the heart of the poet's experience, that makes the readers seem to experience it themselves. But it is the scientist's job to give the readers the blueprint by which they could actually construct a similar experience for themselves.²²

Poetic and scientific writing allows for the experiential transmission of botany. The idea of a blueprint formed by scientific nomenclature might be matched to analogies in both kinds of representation and, in didactic poetry, analogies can also provide the "objective correlative" of the colors and smells and emotional reactions to flowers alongside biological precision. Darwin and Smith seek to evoke visual images of plants in their works, a preoccupation evident in the former's lengthy discussions of the visual purpose of poetry in the interludes to *The Loves of the Plants* and also in Smith's sonnets designed to accompany sketches of flowers.²³

This visual focus is something that earlier, pre-Linnaean botanists were also trying to achieve as they communicated with one another over long distances through reference to several encyclopedias held by both parties.²⁴ This protracted process was eased by Linnaeus's provision of "blueprints"—

first the structures articulated in the marriage analogies that enable all botanists to categorize plants according to their stamens and pistils, and second the taxonomic names that identify the flower—both enabling the reader to reconstruct an image of the precise flower in his or her mind. Poets may describe nature in the same way by adopting these same diagnostic phrases and marriage metaphors as analogous to the natural object and its place in the system in a particularly visual kind of poetic imagery.²⁵

Botanical nomenclature, therefore, should put a plant in its place, creating a visual symbol that goes beyond the words on the page. Durable connections are made between the visible flowers seen by individuals and botanical discourse shared by many. The botanist creates analogical connections between plant structures and descriptions to develop a form of classification and a system of naming that provides verbal identifiers that are analogous to the visible plants that he or she categorizes.

BOTANICAL ANALOGIES: THE SEXUAL SYSTEM

Linnaeus's analogical frame of mind in his approach to the practice and dissemination of botany is apparent in the sexual structure unifying his approach. In *Philosophia Botanica* he outlines the basis for ordering the inhabitants of the "Vegetable Kingdom" within a sexual system based on the existence of male and female sexes in every living thing.²⁶ Upon this basis Linnaeus constructs a system of classification whereby stamens and pistils, the male and female sexual organs respectively, are identified and counted. The number of stamens determines the class of the flower and the number of pistils determines its order. These classifications are explained within a series of marriage analogies: "One husband in marriage" refers to "*One stamen in an hermaphrodite flower.*"²⁷ This can be extended so that one stamen with three pistils is explained as one husband with three wives. The arrangement of the marriage can vary; for example, "ONE HOUSE" can mean that "Husbands live with their wives in the same house, but have different beds. *Male flowers and female flowers are on the same plant.*"²⁸ The marriages can be public and open to view, or "clandestine," where "Nuptials are celebrated privately. *Flowers concealed within the fruit, or in some irregular manner.*"²⁹ These brief examples show how Linnaeus's taxonomy is structured around an analogy of sexual hierarchy, expressed through marriage imagery and domestic metaphors. Clive Bush distinguishes between two kinds of analogy in Linnaeus's description of the sexual system: the nonvisual description of "nuptials ... celebrated privately" and then the visual scientific description which applies the nuptials to the precise features of the plant ("Flowers

concealed within the fruit").³⁰ This double analogy allows an insight into the experience of botany and a similar duality of seen and unseen features is achieved through the paratextual interplay of poem and notes in Smith's and Darwin's botanical poems.

Concern with the propriety of the sexual analogy is found in the presentations of Linnaeus's work to educate both female and juvenile audiences.³¹ A key text in this regard is William Withering's *Botanical Arrangement of British Plants* (1776), which aims to "naturalis[e] the Linnaean school of botany" for an English soil and an English readership.³² Directing able, presumably male, readers of Latin to the original text in which the sexual distinctions are described, Withering adopts a new set of cleaner analogies ("CLASSES ... resemble the NATIONS. ORDERS ... resemble the TRIBES" (6)). This reaction is comparable to Richard Polwhele's infamous poem *The Unsex'd Females* (1800) in which the author sets the sexual system of botany against female propriety and modesty showing particular disdain for Darwin's analogies in *The Loves of the Plants*.³³

Charlotte Smith's approach to Linnaean botany is influenced by such discussions of propriety. In fact, she received both praise and censure from Polwhele as he recognized the "variety of expression" in her *Elegiac Sonnets* but noted some "symptoms" of "the Gallic mania" in her writing.³⁴ Restraint is clear in *Rural Walks*, where Smith satirizes the would-be botanist Mrs. Tansy, who "worries one with something about petals, and styles, and filaments" with knowledge neither on her own part nor on that of her audience. This gives way to a recommendation of self-restraint and the reminder that other things are "more material than considering of what genus a flower is, and what are its characters."³⁵ Theresa Kelley suggests that Smith's own restrained presentation of formal botanical learning, excluding the sexual system, might reflect deference to Polwhele and current ideas about the suitability of botany.³⁶ The detailed botanical descriptions in Smith's didactic *Conversations Introducing Poetry* and *Rural Walks* make no reference to the sexual system. Likewise, "Flora" (1807), which has been described as a version of Darwin's *Botanic Garden* for girls, contains Linnaean genus names, technical vocabulary, and personification, but no references to sexual or marriage analogies.³⁷ However, Smith's serious interest in the didactic promotion of botany is also uncovered in a letter to her publishers, Thomas Cadell and William Davies, on 1 August 1797. Although the proposed project never came to fruition, it shows a concern with presenting "Linnaeus's orders":³⁸

Mrs Dorset, whose skill in botanical drawings is greater than that of almost any person I know, has a plan of our doing together a set of drawings, one to illustrate each of Linnaeus's orders—to be etched with a page of Letter press to each & the characters done with precision for the use of botanical students & those who cultivate this branch of drawing.³⁹

In stating that this work might be suitable for novice botanists who wish to avoid “the terms that are so alarming to beginners” (283), Smith shows a preoccupation with precision and accessibility. That the proposed collection will be organized according to the Linnaean order leaves open the possibility of latent analogical application.

Erasmus Darwin suffers none of these social pressures to exclude the suggestive analogies. *The Loves of the Plants* was advertised with a now well-known reference to the purpose of analogy:

The general design of the following sheets is to inlist [*sic*] Imagination under the banner of Science; and to lead her votaries from the looser analogies, which dress out the imagery of poetry, to the stricter ones, which form the ratiocination of philosophy. While their particular design is to induce the ingenious to cultivate the knowledge of BOTANY, by introducing them to the vestibule of that delightful science, and recommending to their attention the immortal works of the celebrated Swedish Naturalist LINNEUS.⁴⁰

A vital distinction is made here between the analogies, or more properly metaphorical figures, that are used in poetry and the “stricter” philosophical analogies which are the preserve of science and which Darwin elaborates upon in the *Loves*. This distinction is important: as writers on analogy throughout the period emphasize, metaphor, or figurative language, draws imaginary connections between things, whereas analogy draws upon parallels and connections that are really present and productive.⁴¹ Devin Griffith’s aforementioned study of “the interface between sensation and natural knowledge” in Darwin’s account of analogy in *Zoonomia* (1794–96) shows how the poet applies the theory of rational analogy to criticise the sceptical division between perception and object.⁴² In *Loves*, Darwin seems to refer to the same connection between “rational” and “intuitive” analogy, as he celebrates how Linnaeus’s reductive, metonymic sexual analogies for explaining the workings and classification of flowers allow “the ingenious to cultivate the knowledge of BOTANY.” Catherine Packham’s treatment of this passage draws links between Darwin’s descriptions of “rational” and “licentious” analogy as forms of expression along a continuum, where the “looser” analogies of poetry can become more than visual metaphors with an educative role, “loosely” dressing out in poetry the stricter connections of science.⁴³ Darwin’s dramatized tableaux detailing the sexual analogy help the reader to develop specialist knowledge of plant classification.

The Loves of the Plants provides an extended version of the analogies in which the husbands and wives of Linnaeus’s system are dramatized. Noting his debt to “Linnaeus the celebrated Swedish naturalist, [who] has demonstrated, that all flowers contain families of males or females or both; and on their marriages has constructed his invaluable System of Botany.”⁴⁴ Darwin

begins the poem with an introduction to the social scene of the vegetable kingdom, where “Beaux and Beauties croud the gaudy groves, / And woo and win their vegetable Loves” (1.9–10). Echoing the diction of popular mock-heroic verses from half a century before, Darwin proceeds with a series of tableaux from the *Canna indica* or Indian Reed (*monandria*, *monogynia*) to the *Adonis* (*polyandria*, *polygynia*). With its scholarly notes, pictorial tables and index of plants, Darwin’s poem is not simply a tour de force of eroticism and humour: the adoption of analogies performs a didactic purpose.

Darwin’s depictions of anthropomorphized flowers expand upon the differences noted in Linnaeus’s classifications.⁴⁵ For example, the first plant that is introduced is the *Canna indica*:

First the tall CANNA lifts his curled brow
Erect to heaven, and plights his nuptial vow
The virtuous pair, in milder regions born,
Dread the rude mask of Autumn’s icy morn. (1.39–42)

The didactic purpose of the analogy is clear: this “virtuous pair” (virtuous because there is but one male and one female in the marriage) is described in terms of its exotic origins, red colouring, and the “nuptial vow” that binds the stamen and the pistil in Linnaeus’s analogy. Dahlia Porter’s interpretation of an analogical interplay between text, typography, and explanatory notes helps to explain how these portraits transcend mere personification to produce “a material analogy between the generically distant language of science and imagination.”⁴⁶ The reader learns to read analogically between the narrative of the virtuous pair and the physical attributes of the “tall Canna,” including its growth in a warmer climate. Having gained this knowledge, the reader is able to read the properties of the plant and understand it within the classificatory system.

Darwin takes liberties with the female analogies within his tableaux. An example can be found in his depiction of the *Papaver*, with its “Many males [and] many females,” the exotic producer of heady opium” (69n). The description demonstrates Darwin’s inventive extension of the analogy:

Sopha’d on silk, amid her charm-built towers,
Her meads of asphodel, and amaranth bowers,
Where Sleep and Silence guard the soft abodes,
In sullen apathy PAPAVER nods.
Faint o’er her couch in scintillating streams
Pass the thin forms of Fancy and of Dreams;
Froze by enchantment on the velvet ground
Fair youths and beauteous ladies glitter round;
On crystal pedestals they seem to sigh,
Bend the stiff knee, and lift the unmoving eye. (2.265–74)

In this image of the *Papaver somniferum*, or opium poppy, we are presented with multisensory descriptions of luxurious fabrics, velvet and silk; intimate locations in bowers; and drugged excess that is scintillating, glittering, and “enchanted”; we also see the languor of excess and leisure, in “sullen apathy”, and unmoving sleep. Darwin maximizes on the female associations with luxury during this period. The image of the lady surrounded by her many males and females is evocative of the opulence that is being described, and there is even a hint of humour at the covert sexuality. Janet Brown notes both the appearance of literary stereotypes in Darwin’s account and how “the poetic imagery, in its turn, influenced the ways in which Darwin and his readers subsequently thought about the vital activities of plants and plant reproduction.”⁴⁷ Linnaeus’s botanical analogies thus pass out of the scientific textbooks into fanciful poetry that is both didactic and highly visual.

The didactic potential of Linnaean analogies feeds into a larger question regarding poetic language and its capacity to represent concise and condensed images and rational interpretations of the natural world. As we shall see in the next section, this can be traced on a smaller scale in terms of plant nomenclature that enables botanists and poets to present a concise and accurate image of the plant on paper.

LINGUISTIC SIGNS AND BOTANICAL SHORTHAND

Linnaeus’s influence as an analogical botanist extends to the selection of names in poetic presentations of plant life. M.M. Mahood notes a trend from the 1770s onwards for poets to “pack their verses with the names of wild flowers.”⁴⁸ Mahood’s identification of the Latin names in the *notes* to these works, rather than in the poetic texts themselves, requires attention. It would seem that these terms would be particularly suited to the expressive needs of a poet as they allow for a concise, lively, and visual presentation of the natural world. The inclusion of these names also plays a didactic function as they enable readers to build up specialist perception through the analogical, interpretative interplay between poem and explanatory notes. This section will consider the didactic and visual function of names in the verses and notes of *Elegiac Sonnets*, *Conversations Introducing Poetry*, and *The Loves of the Plants*, as well as the contribution that such names make to the development of readers’ specialist perception of plants.

The analogical connections promoted by Linnaean nomenclature, in which flowers are named according to their genus and species, involve the precise verbal reconstruction of floral evidence. Linnaeus’s artificial system was by no means universal at this time and it can be contrasted with the

natural system of folk and vernacular nomenclature promoted by John Ray and celebrated later in the nineteenth century by John Clare.⁴⁹ Folk names have obvious literary applications in their promotion of narratives. For example, Wakefield notes particularly “Jack by the Hedge, or Sauce-alone from its smell resembling garlic.”⁵⁰ In *Rural Walks*, Smith presents the “modest, unassuming Lily of the Valley,” contrasting it with the flashy tulip as the flowers are personified literally in the didactic lesson of an excessively fashionable young girl (the tulip) who “excited something like wonder the first time, but ever afterwards disgust,” unlike the “modest merit” of her parochial cousin (the lily of the valley).⁵¹ At the same time, however, Linnaean binomial nomenclature is often better suited to poetic episodes: the identification of characters and essences, rather than narratives, allows a writer to get to the heart of the flower being described and to understand it in structural terms within an ordered system. A consideration of the didactic poetry of Darwin and Smith will help to explain this form of immediate analogy further as both poets draw upon the visual immediacy of botanical experience.

Elaine Scarry’s account of the “perceptual mimesis” of flowers, or the ease with which we can picture flowers in our minds, may help us to think through the more precise analogies made in Linnaean naming.⁵² Scarry draws upon evidence from both experimental psychology and literary accounts to explain the phenomenon:

Flowers can be taken as the representative of the imagination because of the ease of imagining them. That ease is in turn attributable to *their* size and the size of our heads, *their* shape and the shape of our eyes, *their* intense localization and the radius of our conceptual powers, *their* rarity that lets them rise and enter our brains and our willingness to receive them as the template for the production of other, more resistant compositions. It is clear: we were made for one another.⁵³

Scarry shows how, because of this unique combination of features, even the naming of a flower can cause the required image to “light up” in the brain (100).⁵⁴ It might be suggested that botanical poets call on the resources of Linnaean nomenclature to achieve precisely this effect. Darwin’s description of the *Galanthus nivalis* or snowdrop—small in scale, delicate of feature and bell-shaped—provides a good starting point:

With sweet blushes bright GALANTHA glows,
And prints with frolic step the melting snows;
O’er silent floods, white hills, and glittering meads,
Six rival swains the playful beauty leads,
Chides with her dulcet voice the tardy Spring,
Bids slumbering Zephyr stretch his folded wing. (IV, 103–8)

Scarry's perceptual mimesis is certainly evident here as the poet calls on the visual and aural senses to enliven the image of the "bright" snowdrop. Aided by more familiar literary references, the botanical image of the flower is impressed on our minds in the same way that the personified "rival swains" (the six stamens) make footprints in the snow.

But what does the particular use of the genus name achieve? Linnaean analogy can combine the best of both worlds: specific nomenclature and classification that links the visual mimesis associated with the arbitrary name of snowdrop with the precise knowledge associated with botanical explanation. This arrangement enables the poet to represent full knowledge of the plant in a very small space. The resultant combination of technical and aesthetic detail results in a kind of specialist seeing. Poetic depictions of technical botany can therefore replicate the field naturalist's ability, which Lorraine Daston has described as "the all-at-once-ness of virtuoso perception," in which the image brings with it "immediate knowledge 'without pause.'"⁵⁵ This theory can be directly aligned with the associationism of Locke and Hume, which dictates that mental images connect the material world to the intellect and that exposure to the phenomenal world builds up a storehouse of such images.⁵⁶ The colloquial name "snowdrop" therefore gives us a particular image of the flower, one that is drawn upon time and again in poetic presentations of the early-blooming buds such as Smith's "pendant flakes of vegetating snow" or Anna Laetitia Barbauld's icicle transformed into a flower.⁵⁷ The genus name of snowdrop is *Galanthus* (milk white flower) and the species is *nivalis* (snowy), a Latin description that condenses vernacular terms, encouraging essential botanical and taxonomic awareness rather than recalling narrative. Sten Lindroth locates Linnaeus's interest in precise identification in his slogan *res ipsas nosce*, "to know the thing itself" and the botanist's terse mode of writing as an aim "to accommodate in the smallest possible space the utmost possible truth."⁵⁸ This precision fits with the visual appeal of botanical verse and the precise identification that is the botanist's skill. Putting plants, especially new ones, into a system of classes and orders (through classification) and genera and species (through naming) helps botanists and observers of nature to make sense of the world.

For Linnaeus, then, naming and knowledge are twinned and "the knowledge of things perishes by the ignorance of their names."⁵⁹ The accurate language of botanical naming enables its users to create precise analogical connections between words and things that are rarely achieved in ordinary language. The aforementioned focus on naming characters or essences might allow us to align Linnaeus and his followers more securely with the tradition of rational grammar exemplified by James Harris's *Hermes*

(1751), which breaks language down to its "CONSTITUENT PARTS."⁶⁰ Harris's description of the various "*Species of Words*" bears a striking resemblance to the Linnaean project of systematic botany (23). This is clearest in his description of nouns: "All those several Substances have their Genus, their Species, and their Individuals. For example in *natural* Substances, *Animal* is a Genus; *Man*, a Species; *Alexander*, an Individual. In *artificial* Substances, *Edifice* is a Genus; *Palace*, a Species; *the Vatican*, an Individual" (38). *Hermes* is devoted to such precise categorization of language as a system. *Species Plantarum* contains page upon page of examples of the binomial nomenclature that enables a universal language for the classification and accurate description of plants. In order to test how these analogical forms may enable precise description and specialist perception it is necessary to consider the adoption or rejection of the terms outside of the strictly botanical texts.

Charlotte Smith's verses frequently articulate the challenges of representing the botanical world in art and vernacular poetry. Judith Pascoe likens Smith's works to "a naturalist's fieldnotes" and points towards the poet's debts to William Withering, Thomas Martyn, and Colin Milne to conclude that "hers is a poetry of close observation characterized by an attention to organic process in all its minutiae, as well as by a penchant for cataloguing."⁶¹ Some of the poems under consideration are, like Darwin's *Loves*, didactic verses, whereas the *Elegiac Sonnets* appear more personal. Smith's inclusion and exclusion of Linnaean names in different genres of her poetry tests the efficacy of analogizing through names. Her poetry demonstrates a distinctive mixing between vernacular poetic elements and systematic Linnaean descriptions.⁶² Indeed, as Jacqueline Labbe has suggested, it might be said that Smith gives herself poetic authority and legitimacy through such critical references to botanical knowledge and sources.

Smith's visual approach to botany in two poems from the *Elegiac Sonnets* signals the difficulty of representing the natural world through verbal or visual art and the interference caused to rational analogy by emotion. These poems deal with botanical illustration, but neither the analogical knowledge promoted by Linnaean analogy nor the perceptual possibilities afforded by flowers is represented. Smith's grieving mind is clearly drawn to the images of flowers, but she also suggests that their replication in the public world of poetry and art is challenging. Each sonnet uses vernacular terms to explore the artistic representation of flowers in drawing or painting, demonstrating a different kind of precision from that of a botanist. Sonnet xci "Reflections on some drawings of plants," written in the shadow of a daughter's death in 1795, characterizes the "mimic flowers" (1) in great detail by describing the iris's "veins of blue" and "scallop'd leaves, and downy stems" (4–5) in a

way that celebrates both the artist's talent and a microscopic vision. Judith Hawley and Kathleen Rogers both note the somatic links between the pink of human flesh and the rose's blush or the veined iris (3–4), as well as the teary dew that “embathes” the “golden eyes” of flower buds (2).⁶³ These direct metaphors linking the child's body with botanical forms demonstrate the forms of static, emotional seeing that cannot produce new knowledge. Sonnet LXV, again “with some botanic drawings,” reflects a similar lack of confidence in artistic floral representation. Smith claims that her ability to produce floral records is marred by grief:

As the lovely family of flowers
Shrink from the bleakness of the Northern blast,
So fail from present care and sorrow past
The slight botanic pencil's mimic powers.⁶⁴

Smith seems to suggest that the “mimic powers” of the artist can only be produced through fixed concentration: even if flowers and grief spring to the mind with ease, these images and their representation are not precise.

By looking at the didactic works in which Smith employs binomial terms, we can explore whether analogy provides a solution for the challenge of representation outlined in the *Elegiac Sonnets*. Smith's floral descriptions in her didactic verses from *Conversations Introducing Poetry* are more representative of the “field notes” that Pascoe describes. In the poems interspersed amongst conversations on natural and social topics staged between Mrs Talbot and her children Emily and George, Smith uses colloquial names in the body of the verses and binomials with the occasional extended explanation in footnotes. The result is a forging of links between natural philosophy and fancy to didactic and aesthetic effect. Smith herself gives an explanation for this division in a note to an earlier poem, “Apostrophe to an old tree,” in which she erroneously describes the moss clothing the tree as “Vegetation's guardian”: “The philosophy of these few lines may not be very correct, since mosses are known to injure the stems and branches of trees to which they adhere; but the images of Poetry cannot be always adjusted to objects of Natural History.”⁶⁵

As we have seen thus far, the narrative imagery of botany is not always conducive to poetic accuracy. Two poems from *Conversations Introducing Poetry*, “To the snow-drop” and “Violets,” which appear in succession in the third conversation, may offer a solution to this problem in terms of the construction of productive botanical analogies. Emerging out of a long discussion of moral truths and judgement, these poems are introduced to describe “two favourite early flowers.”⁶⁶ Through *Conversations*, Smith uses colloquial names in the body of the text—in the first of these poems snowdrop, crocus, hazel, willows—and provides the binomial term in the

notes. The inclusion of such additional information allows Smith to present her learning and also fulfils the function of didactic poetry. However, the descriptions within the poem itself allow readers to make the connections between poetic description and philosophical (binomial) identifiers needed for future applications of this term. Unsurprisingly, given the juvenile focus, Smith does not apply the Linnaean sexual imagery here, but we are introduced to the chronology of the botanical year in which the snowdrop precedes the crocus and the flowering of the hazel and willows (with its “downy powder’d flowers,” [7]). In “Violets,” too, Smith uses the colloquial name, noting the binomial *Viola odorata* in a note. Tellingly, this poem is introduced with a comment to the children upon “George’s taste for rhythm, and the facility with which you both learn anything written in measure.”⁶⁷ Towards the end of the poem, having described the “purple beauties” (line 7) blooming in “early March” (line 5), Smith gives meaning to the Latin name for her English readers:

Then from your mossy shelter come,
And rival every richer bloom;
For though their colours gayer shine,
Their odours do not equal thine. (13–16)

There is an ease of visualizing plants here that is absent from the earlier sonnets. The development of expert perception requires dispassionate, concentrated viewing, and the knowledge gained is intellectual rather than emotional. Smith imparts botanical knowledge with a light touch, but it can be argued that these descriptive lyrics give meaning to the binomial terms for younger readers so that the analogical connections drawn between plant and name are carried over into future reading as the recall and specialist perception of the violet carries botanically precise information.

Darwin’s *The Loves of the Plants* provides more extensive uses of binomial nomenclature to make visual analogies. There is an artistic focus here, too. The poet’s presentation of Linnaean analogies is largely dependent upon his characterization of the poetic process as a kind of painting. In the first of three interludes in *Loves*, each presenting a conversation between the Poet and the Bookseller, Darwin describes himself as “a flower-painter.” The following description of poetic painting suggests how Darwin makes the language of Linnaean botany suitable for verse and for the creation of analogical connections between the name of the plant and its physical form:

Poetry admits of very few words expressive of perfectly abstracted ideas, whereas Prose abounds with them. And as our ideas observed from visible objects are more distinct than those observed from the objects of our other senses, the words expressive of those ideas belonging to vision make up the principal part of poetic language. (41–2)

For Darwin, then, the terms that are used in poetry are designed to be immediately striking to the eye, whereas prose can be delivered at a slower pace with explanations. This aim is presented to the “Gentle Reader” in the Proem to *Loves* through the use of an optical image: “Lo, here a CAMERA OBSCURA is presented to thy view, in which are lights and shades dancing on a whited canvas, and magnified into apparent life” (v). The botanical images in *Loves* are thus imagined as lively (“enchanted”) projections that go beyond the usual possibilities of poetic expression.⁶⁸ Darwin’s “pictorializing practice” means that the characters aimed at by Linnaeus in his precise descriptions and the concision of binominal nomenclature are particularly suited to his work.⁶⁹ The treatment of this botanical material requires an engagement with the visual fictions, a willingness to seek factual interpretations in the footnotes, and a capacity to visualize the plants as they are presented.

Darwin’s *The Loves of the Plants*, produced by the owner of a botanic garden and translator of Linnaean Latin, has been described as an example of “philosophical poetry,” which forges a kind of meeting-point between creative verse and the translation of Linnaeus (the kind of balancing act that Smith aims for in *Conversations Introducing Poetry*). Although sometimes “scorned as a gimmicky, tedious, frequently laughable exercise,”⁷⁰ the work plays an important role in terms of presenting the Linnaean language of poetic botanizing to a broader audience.⁷¹ The identification of philosophical poetry also reflects the interplay between the poem’s quasi-fictional analogical narratives and its extensive botanical notes. D. G. King-Hele describes the effect of this balancing act on the poem’s reception: “Non-scientific readers could lap up the verses quite enjoyably, and then dip into the notes as they wished, feeling at the end that they had become knowledgeable—or at least, more knowledgeable—in science.”⁷² Each botanical narrative follows a loosely defined pattern: a flower is presented and characterized as a male or female nymph bearing the generic name of Linnaean nomenclature, the number and activities of the males and females are then described, often in terms of a virtuous or predatory female surrounded by male lovers. The didactic importance and analogical content of the poem is made clear from the beginning:

BOTANIC MUSE! who in this latter age
Led by your airy hand the Swedish sage,
Bad his keen eye your secret haunts explore
On dewy dell, high wood, and winding shore;
Say on each leaf how tiny Graces dwell;
How laugh the Pleasures in a blossom’s bell;
How insect-Loves arose on cob-web wings,
Aim their light shafts, and point their little stings. (1.33–38)

The reader is drawn into this miniature, mock-heroic world of “tiny Graces” and “insect-Loves.” Any learning derived from the “Swedish sage” (confirmed as “Linnaeus the celebrated Swedish naturalist” on the previous page) seems to come secondary to the high drama that is to follow.

One of the most immediately noticeable features of Darwin’s flower-naming is his application of gender. Under the Goddess of Botany, each flower is characterized as a nymph bearing the Linnaean genus name. These names are overwhelmingly female: *Lonicera* (honeysuckle) appears as a sweetly scented maid holding a horn of plenty, wooed by “five rival Swains” (1.217); *Rubia* (madder) is presented as “blend[ing] / Her vermil dyes” over a cauldron, whilst the four males perform the dyeing (1.321–22); *Galantha* (snowdrop) is imagined as a blushing female wooed by “Six rival swains” (4.104). Visual characterization is also afforded by masculine names. *Osyris*, in which the males and females are on different plants, is characterized in mock heroic fashion that draws upon Linnaean diction and eighteenth-century ideals of taste and fashion: “The proud OSYRIS flies his angry fair, / Two houses hold the fashionable pair” (1.75–6). On the other hand, *Ilex* (holly) is described as a male army bearing harmful weapons (“Each grasps a thousand arrows in his hand”) to defend the four males and four females within (1.144). In other instances, the gendered presentation can result in alteration of the latinate names. Neuter nouns are feminized: for instance, *arum* (cuckoo-pint) is rendered in the female form *Ara* to enable the personification of a “stern” member of the class “Gynandria,” or “masculine ladies” (148n). Likewise, masculine nouns are sometimes feminized: *Cyperus papyrus* is rendered *Papyrus* feminising the species name in order to highlight the plant’s application introducing a long description of writing and learning in which Papyrus is a kind of muse. *Laura* is a good example of effective personification of the species *Prunus laurocerasus*, highlighting the class and order of twenty males and one female characterized as a furious intoxicant aided by twenty priests.

The gendered characterization afforded by Latinate names enables Darwin to present additional features of the plants with the name as an analogous blueprint for the biological specimen being described. Examples of this can be found in the description of the sunflower and the touch-me-not. Darwin’s description of the latter affords a dramatic insight into plant behaviour:

With fierce distracted eye IMPATIENS stands,
Swells her pale cheeks, and brandishes her hands,
With rage and hate the astonish’d grove alarms,
And hurls her infants from her frantic arms. (3.131–34)

The anthropomorphism of the portrait is emphasized by the description of the flower as a neglectful mother, responding to touch with “rage and hate,” throwing her infants from her arms. As Darwin notes in a footnote, these “arms” have a botanical counterpart in each seed vessel, which “on being touched, suddenly folds itself into a spiral form, leaps from the stalk, and disperses the seeds to a greater distance by its elasticity” (98–99n). In this little drama, the name *Impatiens*—literally impatient, or that cannot bear (to be touched)—is given true meaning and the short description achieves a new status.

Finally, the presentation of genus names in capitals heightens the visual appeal of Darwin’s catalogue of flowers as analogical connections are made between a plant’s features and its name:

Great HELIANTHUS guides o’er twilight plains
In gay solemnity his Dervice-trains;
Marshall’d in *fives* each gaudy band proceeds,
With zealous step he climbs the upland lawn,
And bows in homage to the rising dawn,
Imbibes with eagle-eye the golden ray,
And watches, as it moves, the orb of day. (1.191–98)

The genus name “HELIANTHUS” functions as a mnemonic head that is spacially differentiated on the page. Darwin’s use of this visual technique is comparable to Linnaeus’s own manipulation of commonplacing techniques, such as heads and tables, to present the twenty-classes as “a fixed way of seeing for the reader” in his botanical texts.⁷³ Vital, too, for this visual mode of learning is the situation of notes at the foot of each page (a distinction from Smith’s practice of documentation). The description of *Helianthus* brings the Latin term to life for vernacular readers by considering the botanical properties of the flower. We are instructed about the class of the flower: the “gaudy band” of males/stamens is “marshall’d in *fives*,” meaning that there are many houses (“Dervice-trains”) of five males and one female. We are also instructed about the sunflower’s motion as it follows the sun throughout the day. Throughout the description, then, the didactic function is achieved as a visual analogy is drawn between the *Helianthus* and its biological properties to produce specialist perception.

FUTURE ANALOGIES

Linnaeus focused on abstract rather than direct description. Not one single species was illustrated in its entirety in *Systema Naturae*, and the botanist excluded engraved images as unsuitable for much of his systematic work. The artificial system’s dependence on terminology rather than illustration

therefore opened the market for didactic botanical texts and poems. The analogies afforded by Linnaean botany and promoted in Darwin's and Smith's verses are unique to the demonstration of this particular system. The late decades of the eighteenth century were a time of botanical mania and enthusiasm for Linnaeus that was to be outpaced by the development of a natural system.⁷⁴ So-called "clandestine" plant—ferns, mushrooms, lichens, algae—which have hidden or uncountable stamens and pistils, and thus do not fit into the classification, lie outside of the current study. Theresa Kelley's recent monograph tackles the limitations of Linnaeus's artificial method of classification that only focuses on selected features of a plant: "human taxonomists could not fill in all the gaps in a classificatory record that had not yet or could not expand rapidly enough to include newly discovered plants."⁷⁵ This, too, reflects the limits of visual analogy that depends on the simplicity of the artificial system.

There are some limitations to the visible possibilities of Linnaeus's characters: written in (neo-) Latin, these names could hardly be said to bring to view a concise image for each plant to the ordinary reader for whom the colloquial names of the honeysuckle, the snowdrop, the ragwort, and so on would be much more evocative. Didactic poetry, therefore, produces a solution as the natural place for analogizing botany. As this essay has shown, the analogies between plant name and natural object are fused through a process of reading between poetic images and notes. The didactic and literary possibilities of the marriage analogy and the potential for mimetic representation of biological formulae are exploited by Smith and Darwin. Johann David Michaelis provides a visual account of poetic language's efficacy:

It is through poetry that natural history gains admittance into the closets of those who do not trouble themselves about going after it in the fields, or in the abyss of the earth. When a picture has charmed us in poetry, we are curious to see the original, and on seeing it, memory faithfully retains the impression.⁷⁴

The foregoing analysis adds weight to this claim, as Linnaean analogy provides a unique solution to John Aiken's reservations about the capacity of poetic language to represent the vegetable kingdom through natural imagery. These two forms of analogy, directing classification and nomenclature, permit and develop specialist visual perception. We see here concise terms to raise precise, botanically informed images of plants.

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NOTES

- 1 John Scott, "Ode XII: To a Friend," in *The Poetical Works of John Scott* (London: Buckland 1782), 198–200, lines 28–38.
- 2 Lisbet Koerner, "Carl Linnaeus in his Time and Place," in *Cultures of Natural History*, ed. N. Jardine, J. A. Secord, and E. C. Spary (Cambridge U. Press, 1996), 145–62.
- 3 J. J. Rousseau, *Letters on the Elements of Botany. Addressed to a Lady*, trans. Thomas Martyn, 2nd edn (London: White, 1787), x–xi.
- 4 J. Aiken, *An Essay on the Application of Natural History to Poetry* (London: Johnson, 1777), 33.
- 5 Sam George, *Botany, Sexuality and Women's Writing 1760–1830: From Modest Shoot to Forward Plant* (Manchester U. Press, 2007). Sam George, "Carl Linnaeus, Erasmus Darwin, and Anna Seward: Botanical Poetry and Female Education," *Science and Education* 23. 3 (2014): 673–94, doi: 10.1007/S11191–014–9677–Y. Amy M. King, *Bloom: The Botanical Vernacular in the English Novel* (Oxford U. Press, 2003). Jacqueline Labbe, *Charlotte Smith: Romanticism, Poetry and Culture of Gender* (Manchester U. Press, 2003). Patricia Fara, *Erasmus Darwin: Sex, Science, and Serendipity* (Oxford U. Press, 2012).
- 6 Theresa Kelley, *Clandestine Marriage: Botany and Romantic Culture* (Johns Hopkins U. Press, 2012). Martin Priestman, *The Poetry of Erasmus Darwin* (Farnham: Ashgate, 2013).
- 7 Catherine Packham, "The Science and Personification of Animation: Personification, Analogy, and Erasmus Darwin's *The Loves of the Plants*," *Romanticism* 10.2 (2004): 191–208, <http://dx.doi.org/10.3366/rom.2004.10.2.191>. Devin S. Griffiths, "The Intuitions of Analogy in Erasmus Darwin's Poetics," *SEL Studies in English Literature 1500–1900*, 51.3 (2011): 645–65. doi: 10.1353/sel.2011.0031.
- 8 Ephraim Chambers, *Cyclopaedia, or, A Universal Dictionary of Arts and Sciences*, 2 vols. (London: Knapton and others, 1728).
- 9 Erasmus Darwin, *Zoonomia: or the Laws of Organic Life*, vol. 1 (London: Johnson, 1794), 1.
- 10 Griffiths, "Intuitions of Analogy," 647.
- 11 Brian Ogilvie, *The Science of Describing: Natural History in Renaissance Europe* (U. of Chicago Press, 2008), 140.
- 12 François Delaporte, *Nature's Second Kingdom: Explorations of Vegetality in the Eighteenth Century*, trans. Arthur Goldhammer (MIT Press, 1982), 5.
- 13 I draw upon three sources for Linnaeus's botany. A *System of Vegetables* is Erasmus Darwin's translation of Linnaeus's work. Published under the name of the Lichfield Botanical Society in 1783 it presents the marriage analogies and diction of botanical description for an English audience. Linnaeus's *Philosophia Botanica* (1751) provides the first examples of binomial nomenclature and is used here for genus and species names. Francois-Alexandre Quesné's French translation of 1788 is the most reliable modern translation.

- 14 Nehemiah Grew, *The Anatomy of Plants. With an Idea of a Philosophical History of Plants. And several other Lectures, read before the Royal Society* (London: Rawlins, 1682), 4. For a detailed account of the classification processes in pre-Linnaean botany see Alfred Gundersen, "A Sketch of Plant Classification from Theophrastus to the Present," *Torreya* 18, no. 11 (1918): 213–19, <http://www.jstor.org/stable/40595853>.
- 15 Isabelle Charmentier, "Carl Linnaeus and the Visual Representation of Nature," *Historical Studies in the Natural Sciences*, 41.4 (2011): 365–404. See esp. 392–93. doi: 10.1525/hsns.2011.41.4.365.
- 16 "LES VRAIS BOTANISTES connoissent la Botanique par ses propres principes, & doivent savoir donner à tous les Végétaux un nom facile à comprendre." Carl Linnaeus, *Philosophie Botanique de Charles Linné*, trans. Fr.-A. Quesné (Paris: Cailleau, 1788), 5.
- 17 "LES SYNONYMISTES recueillent les noms divers que les Végétaux avoient anciennement reçus des Botanistes... / LES CRITIQUES déterminerent les noms qui appartiennent véritablement aux genres & especes... / LES ETYMOLOGISTES découvrent les racines & l'origine des noms génériques... / LES LEXICOGRAPHES rassemblent les noms de différentes langues..." Linnaeus, *Philosophie Botanique*, 18.
- 18 "La Nature ne font point de faut." Linnaeus, *Philosophie Botanique*, 35.
- 19 "True BOTANISTS will labour to increase this lovely Science: will construct Fundamental DESCRIPTIONS in characteristic words, particularly of obscure, rare, and new Plants, according to the rule of Delineation of a plant; as is done by my Son, and Schreberus in *Decariis*." [Erasmus Darwin], A Botanical Society at Lichfield, *A System of Vegetables, According to Their Classes, Orders, Genera, Species With Their Characters and Differences. In Two Volumes. Translated from the Thirteenth Edition (As Published by Dr. Murray) of the Systema Vegetabilium of the Late Professor Linnaeus; and from the Supplementum Plantarum of the Present Professor Linnaeus*, (Lichfield: Jackson, 1783), i:11.
- 20 "Le CARACTERE est la définition du genre; on en compte trois especes, le *Factice*, l'*Essentiel* & le *Naturel*." Linnaeus, *Philosophie Botanique*, 166 ("Il faut que le *Caractere Naturel* soit bien saisi par tout Botaniste." 169).
- 21 Frans A. Stafleu, *Linnaeus and the Linnaeans: The Spreading of Their Ideas in Systematic Botany, 1735–1789* (Utrecht: A. Oosthoek's Uitgeversmaatschappij, 1971), 57.
- 22 David Locke, *Science as Writing* (Yale U. Press, 1992), 53.
- 23 James Venable Logan's examination of the interludes identifies Darwin as a poet unusually concerned with the visual impact of poetry. James Venable Logan, *The Poetry and Aesthetics of Erasmus Darwin* (Princeton U. Press, 1972).
- 24 Dániel Margócsy, "Refer to Folio and Number: Encyclopedias, the Exchange of Curiosities, and Practices of Identification Before Linnaeus," *Journal of the History of Ideas* 71.1 (2010): 63–89, <http://www.jstor.org/stable/20621923>.
- 25 It is clear that, for lay readers of botanical poetry, paratextual material may be needed to forge such analogical connections in the first instance.
- 26 "Nous prétendons que dans l'origine des choses il fut uniquement créé deux Sexes de toutes especes d'êtres vivants." Linnaeus, *Philosophie Botanique*, 112.

- 27 Linnaeus, *System of Vegetables*, 23.
- 28 Ibid., 23.
- 29 Ibid., 24.
- 30 Clive Bush, "Erasmus Darwin, Robert John Thornton, and Linnaeus's Sexual System," *Eighteenth-Century Studies* 7.3 (1974): 295–320, 299. <http://www.jstor.org/stable/3031631>.
- 31 See George, *Botany, Sexuality and Women's Writing*.
- 32 William Withering, *A Botanical Arrangement of British Plants; including the Uses of Each Species, in Medicine, Diet, Rural Taxonomy, and the Arts. With an Easy Introduction to the Study of Botany*, 2nd edition, 2 vols. (Birmingham: Swinney, 1787), 1. v.
- 33 Richard Polwhele, *The Unsex'd Females: A Poem, Addressed to the Author of The Pursuits of Nature* (New York: Cobbett, 1800). See esp. 10–11 and 10n.
- 34 Polwhele, *Unsex'd Females*, 23n.
- 35 Charlotte Smith, *Rural Walks: In Dialogues. Intended for the Use of Young Persons*, 2 vols. (London: Cadell and Davies, 1795), 1:149 and 150.
- 36 Theresa Kelley, *Clandestine Marriage*, 117–18.
- 37 Ann B. Shteir, *Cultivating Women Cultivating Science: Flora's Daughters and Botany in England 1760–1860* (Johns Hopkins U. Press, 1996), 72. See also George, *Botany, Sexuality and Women's Writing*, 124ff.
- 38 Charlotte Smith, "To Thomas Cadell Jr. And William Davies" (Oxford, 1 August 1797), *The Collected Letters of Charlotte Smith*, ed. Judith Philips Stanton (Indiana U. Press, 2003), 283–84. See also Elizabeth A. Dolan, *Seeing Suffering in Woman's Literature of the Romantic Era* (Farnham: Ashgate, 2008), 101.
- 39 Smith, "To Thomas Cadell Jr," 283.
- 40 [Erasmus Darwin], *The Botanic Garden. Part II. Containing The Loves of the Plants, A Poem with Botanical Notes* (Lichfield: Johnson, 1789), Advertisement.
- 41 See, for example, Peter Browne's distinction between the "Substitution" of metaphor and the "True Resemblance and Correspondent Reality" of analogy in *Things Divine and Supernatural Conceived by Analogy with Things Natural and Human* (London: Innys and Manby, 1733), 2.
- 42 Griffiths, "Intuitions of Analogy," 646 and 653–54.
- 43 Packham, "Science and Personification of Animation," 198.
- 44 Darwin, *The Loves of the Plants*, 2:2n.

- 45 Priestman, *Poetry of Erasmus Darwin*, 30.
- 46 Dahlia Porter, "Scientific Analogy and Literary Taxonomy in Darwin's *The Loves of the Plants*," *European Romantic Review* 18.2 (2007), 214, doi: 10.1080/10509580701297950.
- 47 Janet Brown, "Botany for Gentlemen: Erasmus Darwin and 'The Loves of the Plants,'" *Isis* 80.4 (1989), 594, <http://www.jstor.org/stable/234174>
- 48 M. M. Mahood, *The Poet as Botanist* (Cambridge U. Press, 2008), 20.
- 49 See Theresa Kelley, "Romantic Exemplarity: Botany and 'Material' Culture," in Noah Heringman, ed., *Romantic Science: The Literary Forms of Natural History* (Albany: SUNY Press, 2003), 223–54. The relevance of botanical Latin has recently come in to question: Linnaeus's rules of plant classification and naming are debated every six years, when the world's botanists gather at the International Botanical Congress. At the XVIII Congress in Melbourne in July 2011, delegates voted in favour of new names in Latin or in English.
- 50 Priscilla Wakefield, *An Introduction to Botany, in a Series of Familiar Letters, with Illustrative Engravings* (London: Newberry, 1796), 115.
- 51 Smith, *Rural Walks*, 1.127–29.
- 52 Elaine Scarry, "Imagining Flowers: Perceptual Mimesis (Particularly Delphinium)," in John Bender and Michael Marrinan eds., *Regimes of Description* (Stanford U. Press, 2005), 97.
- 53 Scarry, "Imagining Flowers," 112. Scarry uses the Aristotelean term "rarity" to refer to the translucent quality of flower petals.
- 54 Ibid., 100.
- 55 Lorraine Daston, "On Scientific Observation," *Isis* 99 (2008), 99, doi: 10.1086/587535
- 56 See Ellen J. Esroc's account of visual images in *The Reader's Eye: Visual Imagery as Reader Response* (Johns Hopkins U. Press, 1994).
- 57 Smith, "To the Snowdrop" (1804), *The Poems of Charlotte Smith*, ed. Stuart Curran (Oxford: Oxford U. Press, 1993), 187–88, line 1. Anna Laetitia Barbauld, "The Imitation," in *The Poems of Anna Laetitia Barbauld*, ed. William McCarthy and Elizabeth Kraft (U. of Georgia Press, 1994), 9–14, lines 41–46.
- 58 Sten Lindroth, "The Two Faces of Linnaeus," tr. Michael Srigley, in *Linnaeus: The Man and His Work*, ed. Tore Frängsmyr (U. of California Press, 1983), 5.
- 59 "La connaissance des choses périt par l'ignorance du Nom." Linnaeus, *Philosophie Botanique*, 200.
- 60 [James Harris], *Hermes: Or, A Philosophical Essay Concerning Language and Universal Grammar* (London: Nourse and Vaillant, 1751), 7.
- 61 Judith Pascoe, "Female Botanists and the Poetry of Charlotte Smith," in *Re-Visioning*

Romanticism: British Women Writers, 1776–1837, Carol Shiner Wilson and Joel Haefner, eds. (U. of Pennsylvania Press, 1994), 193.

- 62 See also Jacqueline Labbe, *Charlotte Smith: Romanticism, Poetry and Culture of Gender* (Manchester U. Press, 2003), 54.
- 63 Judith Hawley, “Charlotte Smith’s *Elegiac Sonnets*: Losses and Gains,” in *Women’s Poetry in the Enlightenment: the Making of a Canon, 1730–1820*, ed. Isobel Armstrong and Virginia Blain (Basingstoke: Macmillan, 1999), 189; Kathleen Béres Rogers, “Permeability and Its Uses: Affect and Audience in Charlotte Smith’s *Elegiac Sonnets*,” *Women’s Writing* 16.1 (2009), 133, doi: 10.1080/09699080902768323.
- 64 Smith, “To Dr. Parry of Bath, with some botanic drawings which had been made some years,” *Poems*, 57, lines 5–8.
- 65 Smith, *Poems*, 109n.
- 66 Charlotte Smith, *Conversations Introducing Poetry* (London: Johnson, 1804), 1:93.
- 67 Smith, *Conversations Introducing Poetry*, 1:96.
- 68 Priestman, *Poetry of Erasmus Darwin*, 53ff, explores this passage to explain how “Darwin sets up an oscillation between the real external world and the white sheet onto which it is projected.”
- 69 Priestman, *Poetry of Erasmus Darwin*, 41.
- 70 Noel Jackson, “Rhyme and Reason: Erasmus Darwin’s Romanticism,” *MLQ* 70, 2 (2009), 171, doi: 10.1215/00267929-2008-036. Patricia Fara’s reaction to the poem’s overblown analogies and rhyming couplets is an example of this.
- 71 Jackson, “Rhyme and Reason,” 171. See also Alan Bewell’s description of *The Botanic Garden* as “a very expensive gardening book” or “versified plant catalogue” for the middle classes. Alan Bewell, “Erasmus Darwin’s Cosmopolitan Nature,” *ELH* 76.1 (2009), 28. doi: 10.1353/elh.0.0034.
- 72 D. G. King-Hele, “Erasmus Darwin: Man of Ideas and Inventor of Words,” *Notes and Records of the Royal Society of London* 42.2 (1988), 164, <http://www.jstor.org/stable/531355>.
- 73 M. D. Eddy, “Tools for Reordering: Commonplacing and the Space of Words in Linnaeus’s *Philosophia Botanica*,” *Intellectual History Review*, 20.2 (2010): 227–52, doi: 10.1080/17496971003783773
- 74 On the supplanting of Linnaeus’s artificial system see Kelley, “Romantic Exemplarity,” 4–5 and 20.
- 75 Kelley, “Romantic Exemplarity,” 34.
- 76 J. D. Michaelis, *A Dissertation on the Influence of Opinions on Language and of Language on Opinions*, trans. from the German (London: Owen and Bingley, 1769), 43. However, Michaelis writes passionately of the necessity for vernacular botany.